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INSECTS OF SAMOA

AND OTHER SAMOAN TERRESTRIAL ARTHROPODA

PART VII. OTHER ORDERS OF INSECTS

FASC. 4. Pp. 117–129

PSOCOPTERA

By Dr. H. H. KARNY,
VIENNA.

WITH EIGHT TEXT-FIGURES

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INSECTS OF SAMOA
AND OTHER SAMOAN TERRESTRIAL ARTHROPODA

Although a monograph, or series of papers, dealing comprehensively with the land arthropod fauna of any group of islands in the South Pacific may be expected to yield valuable results, in connection with distribution, modification due to isolation, and other problems, no such work is at present in existence. In order in some measure to remedy this deficiency, and in view of benefits directly accruing to the National Collections, the Trustees of the British Museum have undertaken the publication of this account of the Insects and other Terrestrial Arthropoda collected in the Samoan Islands, in 1924-1925, by Messrs. P. A. Buxton and G. H. E. Hopkins, during the Expedition of the London School of Hygiene and Tropical Medicine to the South Pacific. Advantage has been taken of the opportunity thus afforded, to make the studies as complete as possible by including in them all Samoan material of the groups concerned in both the British Museum (Natural History) and (by courtesy of the authorities of that institution) the Bishop Museum, Honolulu.

It was not intended that contributors to the text should be confined to the Museum Staff or to any one nation, but, so far as possible, the assistance of the leading authorities on all groups dealt with has been obtained.

The work is divided into nine "Parts" (see p. 3 of wrapper), which are subdivided into "Fascicles." Each of the latter, which appear as ready in any order, consists of one or more contributions. On the completion of the systematic portion of the work it is intended to issue (in Part IX) a general survey, summarising the whole and drawing from it such conclusions as may be warranted.

A list of Fascicles already issued will be found on pp. 3 and 4 of this wrapper.

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INSECTS OF SAMOA

Part VII. Fasc. 4

PSOCOPTERA.

By Dr. H. H. Karny, Vienna.

(With 8 Text-figures.)

Since Dr. Rechinger (*Denkschr. Math.-Nat. Kl. Akad. Wiss. Wien*, Bd. 81, pp. 197–318, 1908; Bd. 84, pp. 385–562, 1909; Bd. 85, pp. 175–432, 1910; Bd. 88, pp. 1–65, 1912; Bd. 89, pp. 443–708, 1914; Bd. 91, pp. 139–213, 1915), on his expedition to the Samoa Islands, did not collect any Psocoptera, all species of this group, of which specimens were obtained by Messrs. Buxton and Hopkins, constitute new records. Of the eleven species represented in the series before me seven are new, whilst the others were previously known as occurring in New Guinea, from the Biró collection described by Enderlein in 1903 (*Ann. Mus. Nat. Hung.*, I, pp. 179–344, Taf. III–XIV).

The following is the list of the Psocoptera collected by Buxton and Hopkins in Samoa :—

1. *Zorotypus buxtoni*, sp. n.
2. *Nepticulomima biroiana* (Enderl.).
3. *Lepidopsocus hopkinsi*, sp. n.
4. *Echmepteryx desquamata*, sp. n.
5. *Pteroxaniella* (g.n.) *bifurcata*, sp. n.
6. *Phlotodes samoanus*, sp. n.
7. *Clematostigma brevistylus* (Enderl.).
8. *Hemipsocus luridus* (Enderl.).
9. *Philotarsus samoanus*, sp. n.
10. *Mepleres submarginalis*, sp. n.
11. *Caecilius novoguineensis* (Enderl.).

The new species are all peculiar to Samoa, so far as yet known; the four others have been previously recorded from the Papuan-Melanesian Region, and *Hemipsocus luridus* also from the Malayan Region.

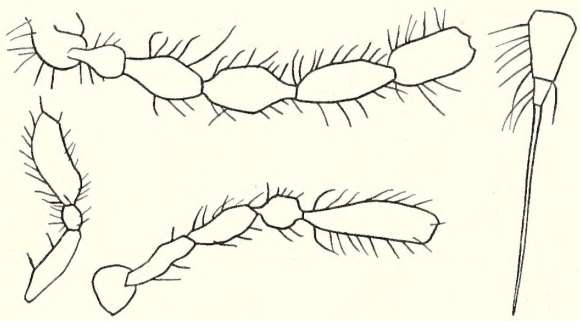
The collection consists of about thirty or forty specimens, most of which are dried and pinned; a few are in alcohol and some are prepared as microscope slides. The majority of the specimens belong to the " scaly-winged " species.

Sub-order *ZORAPTERA*.

ZOROTYPIDAE.

1. Zorotypus buxtoni, sp. n. (Text-fig. 1).

A single specimen in spirit from Upolu: Malololelei, 2,000 feet, 25.vi.1924 (Buxton and Hopkins). As both antennae are broken, and only the first six joints can be studied, it is impossible to make out with certainty whether we have to do with a juvenile or with a full-grown specimen. The insect was collected in rotten wood.



Text-fig. 1.—*Zorotypus buxtoni*, sp. n. Antenna from first to sixth joint (above); labial palp (left); maxillary palp (below); cercus (right).

Yellow, weakly chitinised, apterous. Second joint of *antennae* distinctly shorter than third, though more than half so long as latter. Maxillary palpus 5-jointed, basal and penultimate joints very short, remainder long and almost cylindrical. Labial palpus 3-jointed, penultimate joint very short, nearly globular, constricted at base, remaining joints long, almost cylindrical. Cercus conical, terminating in a long, thick, apical style or seta, at base of which is a small annular joint as in *Z. javanicus* Silvestri (*Boll. Lab. Zool. Portici*, VII, pp. 208–209, figs. XII, XIII, 1913: *cf.* Karny, *Treubia*, IX, p. 4, fig. 3 (upper right-hand figure), 1926).

This new species should come, according to Caudell's key (*Trans. Amer. Ent. Soc.*, XLVIII, p. 135, 1922), between *Zorotypus ceylonicus* Silvestri (*Boll. Lab. Zool. Portici*, VII, pp. 207–208, figs. VIII–XI, 1913) and *Z. javanicus* Silvestri; it differs from both in the shape of the second antennal joint, this being

more constricted than in *Z. ceylonicus*, and much longer than in *Z. javanicus*. From *Z. silvestrii* Karny and *Z. caudelli* Karny, my new species differs in the shape of the cerci (*cf. Treubia*, IX, p. 4, fig. 3 (lower right-hand figure), 1926, and III, p. 20, fig. 7, 1923). *Zorotypus buxtoni* differs similarly from the hitherto known American species, including *Z. neotropicus* Silvestri (*Boll. Lab. Zool. Portici*, X, p. 120, 1916), *Z. manni* Caudell (*Proc. Ent. Soc. Wash.*, XXV, pp. 60–62, 1923), and *Z. longicercatus* Caudell (*Proc. Ent. Soc. Wash.*, XXIX, pp. 144–145, 1927) : in the last-named no terminal seta is present.

Sub-order *COPEOGNATHA*.

AMPHIENTOMIDAE.*

Perientominae.*

Perientomini.*

2. Nepticulomima biroiana (Enderlein, 1903) (Text-fig. 2).

Perientomum biroianum Enderlein, *Ann. Mus. Nat. Hung.*, I, pp. 327–328, fig. 12 ; Taf. XI, fig. 60 b ; Taf. XII, figs. 60 a and c, 1903.
Nepticulomima biroiana Enderlein, *Spolia Zeyl.*, IV, p. 95 (footnote), and pp. 101–102, 1906.

Upolu : Apia, ii.1924, 1 specimen ; 16.v.1924, 1 specimen ; 1.xi.1924, 1 specimen ; viii.1925, 1 specimen (slide) ; ix.1925, 2 specimens (slides) ; 27.x.1925, 1 specimen (slide) ; 28.x.1925, 1 specimen (slide) ; 29.x.1925, 1 specimen.

Savaii : Salailua, 21.v.1924 (Bryan), 1 specimen.

As regards venation (text-fig. 2) and the other characters indicated by him, the above-mentioned specimens agree very well with Enderlein's description.

Enderlein could not describe the colour more accurately, since the type specimen was too much damaged. I am now able to complete his description, as follows. The fore *wings* are dark brown in the basal third, with a wide, silvery, finely dark-punctured cross-band near the middle ; the apical portion is again dark brown. The dark areas are very finely punctured with whitish. The fringe is coloured like the wing itself, but before the apex are two light, silvery spots, one on the fore, the other on the hind margin ; these do not extend on to the wing. In the apical part of the anterior margin of the hind wings the fringe shows three wide dark brown bands, and between them two silvery spots.

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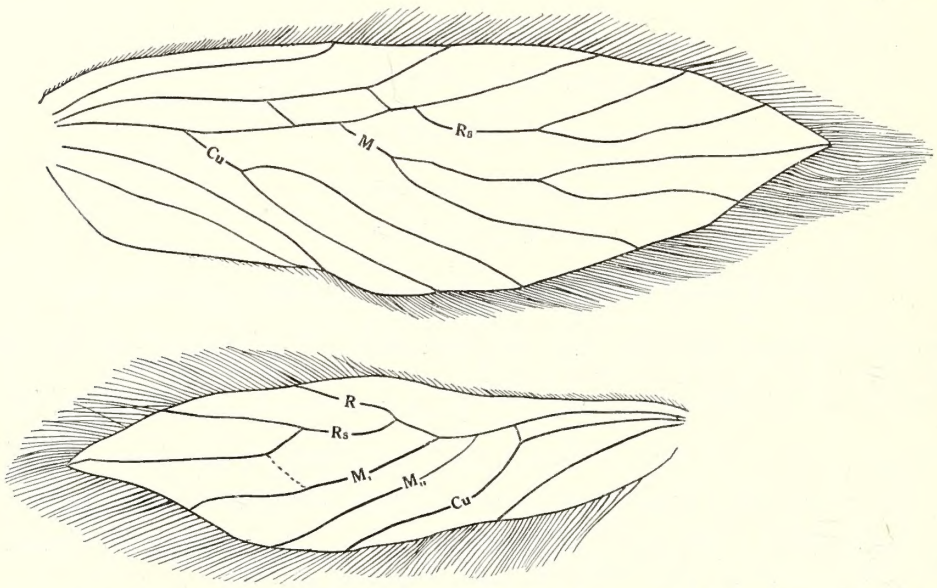
* In this paper, I follow the system established by me in *Treubia*, XII, pp. 431–461, 1930.

Since the colouration of the fore wing was unknown to Enderlein, he was unable to include this species in his key (*Spol. Zeyl., loc. cit.*), the following addition to which may now be made.

4.	Fore wing dark brown, with brassy yellow spots	*essigkeana* Enderl.
	Fore wing grey-brown, with silvery markings	4a.
4a.	Fore wing dark grey-brown, with a broad silvery cross band and two silvery fringe spots before apex (one on fore, one on hind margin) .	*biroiana* Enderl.
	Fore wing relatively narrow, grey-brown, with large silvery marginal spots	*sakuntala* Enderl.



TEXT-FIG. 2.—*Nepticulomima biroiana* (Enderlein). Front and hind wings; the dotted line in the hind wing indicates an anomalous cross-vein, present in one specimen.

This species was previously known only as occurring in New Guinea.

In one of the examples before me there is an anomalous cross vein in the hind wing, running from the posterior branch of the radial sector to the first branch of the medial vein. In text-fig. 2 I have indicated this cross vein, which is absent in all the other specimens, by a dotted line.

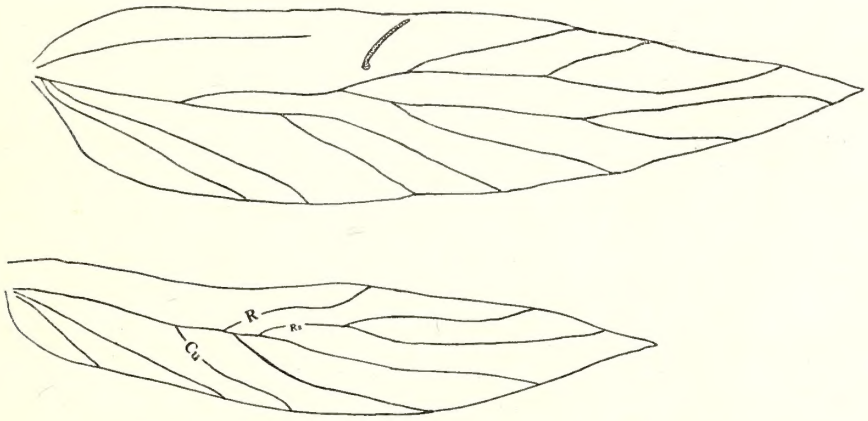
Echmepterygini.

3. Lepidopsocus hopkinsi, sp. n. (Text-fig. 3).

Upolu: Vailima, 25.x.1924, 1 specimen (type); Malololelei, 2,000 feet, 28.vi.1924, 2 specimens; vii.1924, 2 specimens; 25.xi.1924, 3 specimens; 30.xi.1924, 1 specimen; Apia, 29.x.1925, 1 specimen; 1.xi.1924, 1 specimen. All specimens dried.

Closely resembling *L. nepticulides* Enderlein (*Ann. Mus. Nat. Hung.*, I, pp. 330–331, Taf. IX, fig. 62 a, Taf. X, figs. 62 d–f, Taf. XI, fig. 62 b, Taf. XII, figs. 62 c, g, 1903), but pattern of front *wings* somewhat different: ground colour less yellowish and more golden-greyish than in Enderlein's fig. 62 a, and in basal portion dark brown colour not dissolved into spots, but forming a continuous dark wing base ; in middle and apical part of wing colour pattern exactly as in Enderlein's figure.

It is possible that we are merely dealing with a colour variety of Enderlein's species, although, having regard to geography, this would not seem very probable,



TEXT-FIG. 3.—*Lepidopsocus hopkinsi*, sp. n. Front and hind wings.

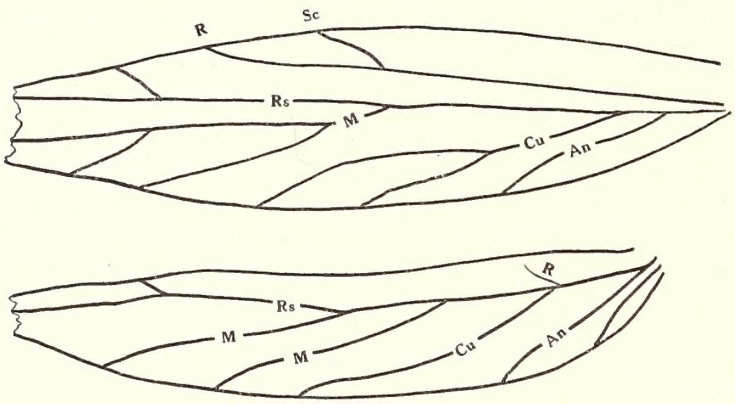
for the type of *L. nepticulides* was obtained in Singapore, whilst *L. hopkinsi* was discovered in Samoa.

Moreover, apart from the wing colouration, *L. hopkinsi* is easily distinguishable from *Nepticulomima biroiana* by its venation. In the front wing, there are no closed cells ; in the hind wing the longitudinal veins have a common origin (in *Nepticulomima*, on the contrary, they arise from two main stems, which are separate and come together again and so enclose a very narrow closed basal cell) ; moreover the radial vein arises in *Lepidopsocus* from the common chief stem between the cubital vein and M_2 ; but in *Nepticulomima* it arises shortly before the sectoral fork, *i.e.* after the origin of the whole medial vein.

4. Echmepteryx desquamata, sp. n. (Text-fig. 4).

Upolu: Apia, 29.x.1925, 1 specimen (slide, type); 1.xi.1924, 1 specimen (dry).

The genus *Echmepteryx* differs from *Lepidopsocus* most distinctly in the venation of the front (Enderlein, *Spol. Zeyl.*, IV, p. 103, 1906) and hind wings. In the latter, the radial vein arises in *Echmepteryx* near the base, and



TEXT-FIG. 4.—*Echmepteryx desquamata*, sp. n. Front and hind wings.

cannot be distinguished near the costa; further, the fork of the radial sector is much shorter than in *Lepidopsocus* (*cf.* text-figs. 3 and 4).

I cannot state the colour of the front *wings*, since the scales are too much rubbed away (hence the name *desquamata*) in both specimens before me. *Legs* pale brownish-yellow; hind tibiae infuscate at base and distally; first tarsal joint also greyish, following ones brownish-yellow.

Among the species at present known, *E. desquamata* is nearest allied to *E. mihira* Enderlein, of Ceylon (*Spol. Zeyl.*, IV, pp. 104, 107–108, pl. C, fig. 22, pl. E, fig. 81, pl. F, fig. 106, pl. G, fig. 122, 1906), but the radial fork in the fore wing is much wider, and the stem of the cubital fork longer than in that species (text-fig. 4).

Echinopsocini.

Pteroxaniella, gen. n.

Owing to the absence of hind wings, this genus belongs to the Echinopsocini, from all the known genera of which it differs owing to the radial sector being forked. The stem of this sector is in contact with the medial stem at one point, where the latter is bent at an angle (*cf. Scolopama* Enderlein, *Spol. Zeyl.*, IV,

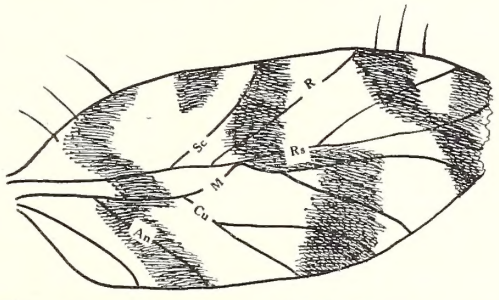
pl. F, fig. 108, 1906). Subcostal and radial veins both simple, medial and cubital veins both forked. The tip of the fore wing of the solitary specimen obtained is damaged, but I am inclined to think that the apex of the wing is not acuminate, but simply rounded, as in *Pteroxanium* Enderlein (*Ent. Mo. Mag.* (3) VIII, p. 103, figs. 1–6, 1922).

Genotype : *Pteroxaniella bifurcata*, sp. n.

5. Pteroxaniella bifurcata, sp. n. (Text-fig. 5).

Upolu : Malololelei, 2,000 feet, 28.vi.1924, 1 dry specimen (type).

Each vein bears a series of circular pits, marking the insertions of the setae, as in *Pteroxanium* (Enderlein, *loc. cit.*, fig. 2, 1922), and *Scolopama* (Enderlein, *Spol. Zeyl.*, *loc. cit.*, 1906). This character is not indicated in the schematic text-fig. 5. Scales on front *wing* very narrow, setiform, as in *Pteroxanium* (*cf.* Enderlein, *Ent. Mo. Mag.*, *loc. cit.*, figs. 4 and 5, 1922). Wings pale, yellowish, with three dark grey cross bands, first of which (near base) runs somewhat obliquely (text-fig. 5) ; middle band beginning on hind margin, and bent twice at right angles in centre ; a spot on costa between basal and middle bands ; apical band forked close to costa. Bands due, not to pigmentation of wing membrane, but to bristles and setiform squamae inserted in it.



TEXT-FIG. 5.—*Pteroxaniella bifurcata*, gen. et sp. n. Front wing (diagrammatic).

The present species differs from all those hitherto described in its wing venation, and especially in the radial sector being forked ; for this reason it is necessary to assign it to a new genus.

PSOCIDAE.

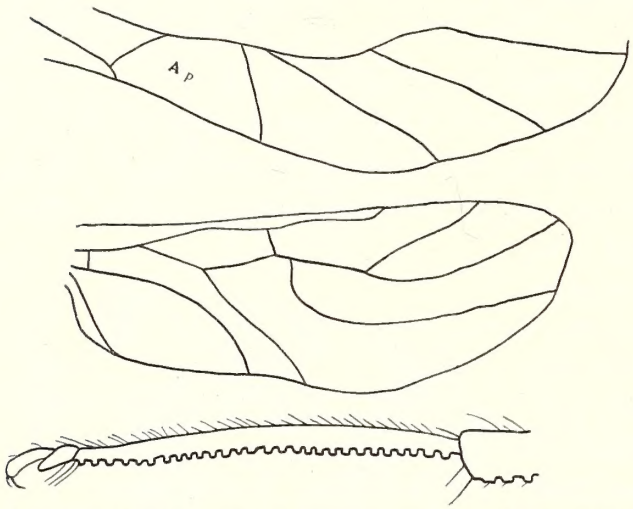
MYOPSOCINAE.

6. Phlotodes samoanus, sp. n. (Text-fig. 6).

Upolu : Apia, 27.vii.1924, 1 dry specimen (type).

Antennae yellowish-brown, long and densely hairy ; forehead brownish-yellow, with some dark spots. *Body* dark brown. Front *wings* with a dark longitudinal band along fore margin of basal part, subsequently emitting a wide

cross branch which passes backwards, reaching hind margin about in centre of anal cell; longitudinal band then continued to pterostigma. A similar dark oblique band running from beginning of areola postica into space between hindmost branch of radial sector and anterior branch of media. Ends of radial and medial branches with longitudinal dark markings. All these dark bands sprinkled with whitish-hyaline; wing area between dark bands whitish-hyaline, sprinkled with brown. Venation as shown in text-fig. 6. Colouration of *legs* as in *P. kolbei* Enderlein. First joint of hind *tarsi* with about 30 ctenidia (text-fig. 6); no ctenidia discernible on second and third joints. Each ctenidium is composed of about four minute teeth, last of which is much longer and thicker than remainder.



TEXT-FIG. 6.—*Phlotodes samoanus*, sp. n. Ramification of median vein of front wing (above); hind wing (centre); and hind tarsus (below).

Length of fore wing 3 mm.

Owing to the ctenidia being so numerous, the species described above resembles *Phlotodes mjöbergi* Karny (*Sarawak Mus. Journ.*, III, pp. 63–64, 1925), of Sarawak; in other respects, however, it comes nearest to *P. kolbei* (Enderlein) (*Ann. Mus. Nat. Hung.*, I, pp. 302–303, Taf. IX, fig. 51 a, Taf. X, fig. 51 b, 1903), of New Guinea. Nevertheless it is clearly distinct from *P. kolbei* owing to the greater number of its ctenidia, and the details of the wing venation; the radial fork cell in the hind wing is narrower than in the Papuan species, and the median vein is closer to the radial sector. Further, the veins of the fore wing are less strikingly thick and prominent than in the figure given by Enderlein, and that part of the areola postica which is bordered by the median vein is wider. The band pattern of the front wing, too, is somewhat different.

Psocinae.

Psocini.

7. Clematostigma brevistylus (Enderlein).

Enderlein, *Ann. Mus. Nat. Hung.*, I, p. 233, Taf. XIV, fig. 76 (*Copostigma*).

Upolu : Vaea, Apia, 1,200 feet, 20.ii.1915, 1 dry specimen ; Malololelei, 2,000 feet, 25.vi., 25.xi.1924, 3 dry specimens.

This species was originally described from the Biró collection, from New Guinea, and is characterised by the strikingly short radial stem in the front wing. In the case of a single specimen from Malololelei, markings of the front wing are precisely as figured by Enderlein ; in the three others the terminal branches of M+Cu and the part of the hind margin between them are enclosed in a smoky area : the pattern therefore resembles that exhibited by *Copostigma indicum* Enderlein (*loc. cit.*, Taf. XIV, fig. 73), except that there is only a single, hyaline, drop-like spot in the middle of each fork cell. The fact that this variety is specifically identical with *C. brevistylus* (Enderlein) is proved by the wing venation.

Hemipsocini.

8. Hemipsocus luridus (Enderlein).

Savaii : Salailua, 21.v.1924 (Bryan), 1 dry specimen.

The specimen before me belongs to that species of *Hemipsocus* which is characterised by the presence of dark punctures on the veins in the front wings. This species was originally determined by Enderlein in 1903 (*Ann. Mus. Nat. Hung.*, I, p. 234, Taf. IV, fig. 17) as *H. chloroticus* (Hagen), because he mistook it for Hagen's species, although he added : " Dass übrigens Hagen die Punktierung der Adern nicht angiebt . . . ist auffällig." At the same time, Enderlein (*loc. cit.*, p. 235) described the New Guinea form of his " *chloroticus* " as var. *luridus*.

Subsequently Enderlein (*Stett. Entom. Zeit.*, 67, p. 311, 1906), on the basis of material from Japan, described the form without punctures on the veins as a new species under the name *Hemipsocus hyalinus*. Many years later, when studying the Selys-Longchamps Collection, Enderlein (*Coll. Zool. Edm. de Selys Longchamps*, iii, 2, p. 39, Taf. V, fig. 29, 1919) discovered that his *H. hyalinus* was identical with the true *H.* (*Psocus*) *chloroticus* of Hagen, as proved by the re-examination of a typical specimen of the latter. Thus *H. chloroticus*

(Enderlein, 1903, *nec* Hagen) required a new name, and Enderlein (*op. cit.*, p. 40, 1919) named it *H. selysianus*, nom. nov. In so doing, however, he was in error, since the varietal name *luridus* must necessarily be employed for this species.

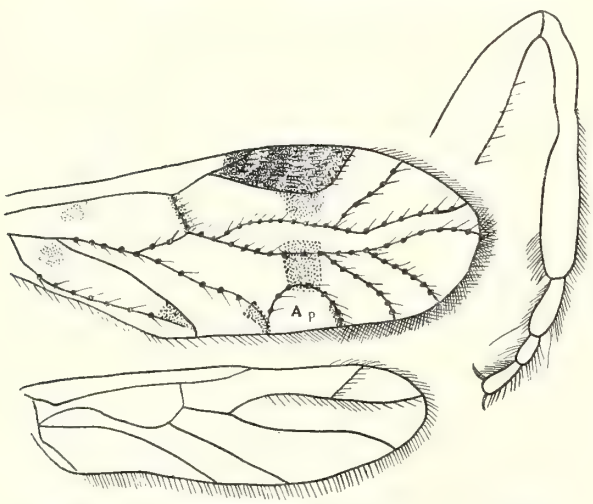
The two forms, occurring in Singapore and in New Guinea, have now to be called respectively *H. luridus selysianus* and *H. luridus luridus*, if they are to be considered distinct; according to Enderlein (1903), the whole difference between them is that the body colour is yellowish-brown in the former and reddish-brown to greyish-brown in the latter. The specimen now before me belongs, so far as can be determined from the dried specimen, to the darker (Papuan) form, that is to say *H. luridus luridus* Enderlein (*Ann. Mus. Nat. Hung.*, I, p. 235, Taf. IV, fig. 17*a*, 1903).

LACHESILLIDAE.

Elipsocinae.

9. Philotarsus samoanus, sp. n. (Text-fig. 7).

Upolu: Apia, 27.vii.1924, 1 dried specimen (type). Bred from a twig of mango, which was tunnelled by Scolytids (Buxton and Hopkins, No. 709 A).



Text-fig. 7.—*Philotarsus samoanus*, sp. n. Front and hind wing, and leg.

Length of fore wing 1·5 mm. *Body* brownish. *Antennae* long and thin, the segments elongate, dark brown, whitish at the joints, pale; hairs setiform, long, arranged close to the tips of the segments. Eyes dark. Dorsal surface of head pale, with many dark brown dots. *Femora* dark brown, with pale, well-defined cross bands at base, in middle, and at tip. Tibiae dark, with well-defined pale markings at base and tip. Tarsi three-jointed (text-fig. 7), brown.

Front wing pattern (text-fig. 7) resembling that of the Australian *Cladioneura pulchripennis* Enderlein (*Zool. Jahrb., Abt. f. Syst.*, XXIII, p. 405, Taf. 23, fig. 5,

1906), especially in the dark dots at the insertions of setae on the longitudinal veins; these dots in *P. samoanus*, however, are in single rows only, whilst in *C. pulchripennis* they are in double rows. The dark spot on the margin of the areola postica is not elongate basad, as in *Cladioneura*, but forms with the pterostigmal spot an interrupted cross band, which passes forwards across the medial vein, but without reaching the radial sector.

As is shown by the veins and bristles of the hind wings (text-fig. 7), this species belongs without any doubt to *Philotarsus*; one can see at once that it differs from *Cladioneura* owing to the tarsi being three-jointed. In the genus *Philotarsus*, among the species known to me it is nearest allied to *P. maculatus* Tillyard, of New Zealand, which it resembles owing to the presence of conspicuous spots on the front wing, though their arrangement is quite different. The same is the case if one compares it with *P. fraternus*, of Bolivia, and with the European *P. flaviceps*. Moreover, my new species is much smaller than any of the three species with which I have compared it.

Lachesillinae.

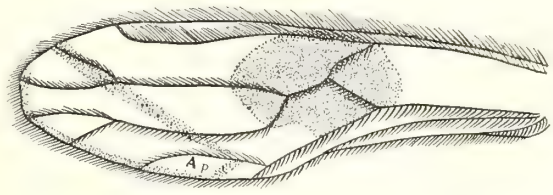
Lachesillini.

10. Mepleres submarginalis, sp. n. (Text-fig. 8).

Upolu: Apia, 20.xi.1924, 1 dried specimen (type).

Length of fore wing 1·5 mm.

Dorsal surface of *body* black, *legs* and *antennae* pale yellowish. Antennae clothed with extraordinarily long bristly hairs. *Wings* hyaline, front wing (text-fig. 8) with large dark spot in middle; a dark marginal streak running from close to end of hind branch of radial sector into areola postica, and then passing obliquely across latter; an oblique dark submarginal streak beginning at tip of anterior branch of radial sector, following this and continuing in same direction obliquely backward to areola postica.



Text-fig. 8.—*Mepleres submarginalis*, sp. n. Front wing.

The genus *Mepleres* was founded by Enderlein in 1926 (*Zool. Mededeel.*, IX, p. 61) for a new species (*M. maeandricus*) found in Java; to this genus

Enderlein added two further species originally attributed to *Hemicaecilius*, viz. *H. limbatus* Enderlein (*Zool. Anz.*, XXXIII, p. 770, 1908), of Formosa, and *H. suzukii* Okamoto (*Ann. Mus. Nat. Hung.*, VIII, pp. 193–194, Taf. III, fig. 5, 1910), of Japan. Here also belongs the species which I originally described as *Hemicaecilius nigroguttatus* (Karny, *Sarawak Mus. Journ.*, III, p. 73, Pl. 3, fig. 7, 1925), from a specimen from Sarawak; my reference in *Treubia*, XII, p. 451, 1930, should therefore be to *Mepleres*, and not to *Hemicaecilius*.

The genus *Mepleres* agrees with *Hemicaecilius* (genotype *H. bogotanus* Enderlein, *Zool. Jahrb., Abt. f. Syst.*, XVIII, p. 358, Taf. 17, fig. 9, 1903) in possessing a two-branched (simply forked) medial vein in the front wing, but differs in other important respects as regards the front wing venation. In *Mepleres*, radial sector and medial vein coincide for a rather long distance; in *Hemicaecilius*, on the contrary, they are connected only by a short cross-vein. Thus *Hemicaecilius* is referable to the tribe Epipsocini, and not to the Lachesillini, where some twelve months ago I erroneously placed it (*cf.* Karny, *Treubia*, XII, p. 451, December, 1930).

As in the other members of the genus *Mepleres* the front wing in the species described above bears dark markings, but in the arrangement of this pattern *M. submarginalis* differs from all hitherto known species, since the infuscations consist only of a large central spot, an apical marginal band, and a submarginal line basad of it (text-fig. 8).

11. Caecilius novoguineensis Enderlein.

Enderlein, *Ann. Mus. Nat. Hung.*, I, p. 276, Taf. VII, fig. 43, 1903.
Karny, *Bull. Ent. Res.*, XVI, p. 290, 1926.

Upolu: Malololelei, 2,000 feet, 25.xi.1924, 2 dried specimens; Apia, 17.v.1924, 1 specimen in spirit.

The type of *C. novoguineensis* was obtained in New Guinea, and the species was subsequently recorded by myself (*loc. cit.*) as occurring in Fiji.

LIST OF TEXT-FIGURES.

Text-fig. 1. *Zorotypus buxtoni*, sp. n. Antenna from first to sixth joint (above); labial palp (left); maxillary palp (below); cercus (right).

,, 2. *Nepticulomima biroiana* (Enderlein). Front and hind wings; the dotted line in the hind wing indicates an anomalous cross-vein, present in one specimen.

,, 3. *Lepidopsocus hopkinsi*, sp. n. Front and hind wings.

,, 4. *Echmepteryx desquamata*, sp. n. Front and hind wings.

,, 5. *Pteroxaniella bifurcata*, gen. et sp. n. Front wing (diagrammatic).

,, 6. *Phlotodes samoanus*, sp. n. Ramification of median vein of front wing (above); hind wing (centre); and hind tarsus (below).

,, 7. *Philotarsus samoanus*, sp. n. Front and hind wing, and leg.

,, 8. *Mepleres submarginalis*, sp. n. Front wing.

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INSECTS OF SAMOA
AND OTHER SAMOAN TERRESTRIAL ARTHROPODA

LIST OF PARTS AND SYSTEM OF PUBLICATION :—

Part I. Orthoptera and Dermaptera.
„ II. Hemiptera.
„ III. Lepidoptera.
„ IV. Coleoptera.
„ V. Hymenoptera.
„ VI. Diptera.
„ VII. Other Orders of Insects.
„ VIII. Terrestrial Arthropoda other than Insects.
„ IX. Summary and Index.

The work is published at intervals in the form of numbered fascicles. Although individual fascicles may contain contributions by more than one author, each fascicle is so arranged as to form an integral portion of one or other of the Parts specified above.

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